

Appl. No. 10/693,296
Amendment
Examining Group 3652

PATENT

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action mailed on October 19, 2005. A petition for a 1-month extension of time is attached so that the due date is to and including February 21, 2006, since February 20, 2006 is a federal holiday. Entry of this Amendment is requested.

In this Amendment, claims 1-15 and 31-37 are canceled, claims 16, 17, 30, and 38 are amended, and claims 44-55 are added so that claims 16-17, 20-30, and 38-55 are pending and subject to examination on the merits.

The Amendments to claims 16, 30, and 38 do *not* raise new issues requiring further search and/or consideration, since these claims are the same as the claims that were previously presented, but are now in independent form rather than dependent form.

I. 35 U.S.C. 112, 2nd paragraph

Claims 1 and 31 are rejected as indefinite. The Examiner alleges that the term "selectively operable" is indefinite, "because it is unclear how a rotatable operable drive works." This rejection is traversed.

The Examiner questions "how a rotatable operable drive works." This inquiry, if even relevant, would be an allegation that the claims do not comply with 35 U.S.C. 112, first paragraph, not second paragraph. To the extent that the Examiner is alleging that the claims are not enabled under 35 U.S.C. 112, first paragraph, Applicants submit that pages 10-12 of the specification describe, in detail, how rotatable driver works, and that the claims comply with section 112, first paragraph.

Applicants also submit that the words "selective" and "operable" are well known words and can be located in any standard dictionary. The phrase "selectively operable" should therefore be clear and definite. Accordingly, withdrawal of the indefiniteness rejection is requested.

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II. 35 U.S.C. 103 - Thomas et al. and Hine

Claims 1-15 and 30 are rejected as obvious in view of Thomas et al. (U.S. Patent No. 6,116,848) and Hine (U.S. Patent No. 5,102,291). This rejection is traversed.

Claims 1-15 are canceled, so the rejection as to these claims is moot.

A. Independent claim 30

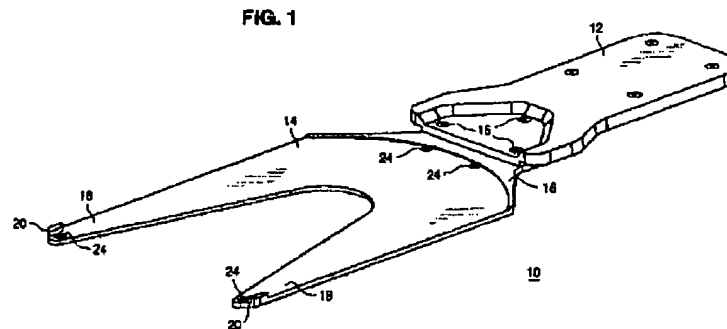
Obviousness has not been established with respect to claim 30, or any claim dependent thereon, since each and every element is not taught or suggested by Thomas et al. and Hine. To establish *prima facie* obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). MPEP 2143.01. Here, for example, obviousness has not been established, since neither Thomas et al. nor Hine teach or suggest an apparatus comprising, *inter alia*, wafer supports, "wherein each of said wafer supports comprises an adjacent pair of rotatable rollers distributed around the periphery of said wafer, each having a shape adapted to engage only said periphery of said wafer when in contact with said wafer, said adjacent pair of rollers being spaced by a distance greater than the dimension of a said peripheral position indicator on a said wafer" as recited in independent claim 30.

The Examiner alleges that Thomas et al. teaches this feature at FIGS. 1-5 and specifically refers to wafer supports "20, 32, 34, 36, 48 comprising a rotatable driver 38". Elements 20, 32, 34, 36, and 48 are not pairs of adjacent rollers, and element 38 is not a "rotatable driver".

Of the reference numbers mentioned by the Examiner, only reference number 20 is shown in FIG. 1. Even if reference number 20 could possibly represent a single roller, as shown below, in FIG. 1 of Thomas et al., there is not suggestion in Thomas et al. that reference number 20 is an "adjacent pair of rollers."

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Of the reference numbers mentioned by the Examiner, reference numbers 32, 34, 36, 38, and 48 are shown in FIG. 2. As shown below in FIG. 2 of Thomas et al., and as explained at column 3, lines 30-35, the active apparatus 30 only contains "two alignment posts of actuated contact portions 34 including active contacts 48". Thus, element 48 is part of element 34 and these are not "adjacent pairs of rollers" as alleged by the Examiner. Element number 36 is an "opening" (c. 3, l. 57) and is not a "roller" and element number 32 is a single actuated contact (c. 4, l. 17) and is not a "roller". Also, contrary to the Examiner's allegation, element 38 is a "thin metal band" (c. 4, l. 19) which causes contacts 32, 48 to actuate and is not a "rotatable driver". Thus, it is clear that the embodiment in FIG. 2 does not show or suggest a plurality of wafer supports, each of said wafer supports comprises an adjacent pair of rotatable rollers distributed around the periphery of said wafer, each having a shape adapted to engage only said periphery of said wafer when in contact with said wafer, said adjacent pair of rollers being spaced by a distance greater than the dimension of a said peripheral position indicator on a said wafer."

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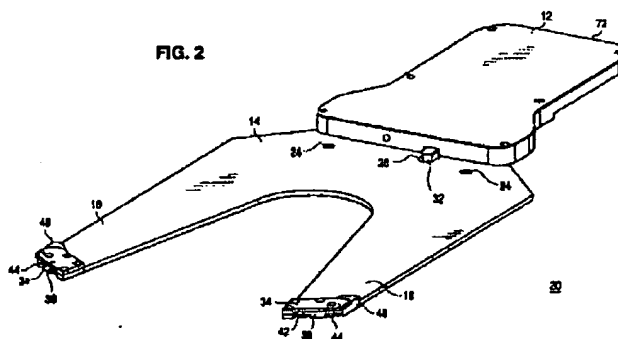


FIG. 3 shows a bottom view of the apparatus 30 shown in FIG. 2, FIG. 4 is an exploded view thereof, and FIG. 5 is another exploded view of a portion of the apparatus. It is clear that FIGS. 3-5 show even less detail than FIGS. 1 and 2, and are less relevant to the claims.

Accordingly, as explained above, neither FIGS. 1-5 nor any other portion of Thomas et al. teach or suggest an apparatus comprising, *inter alia*, wafer supports, "wherein each of said wafer supports comprises an adjacent pair of rotatable rollers distributed around the periphery of said wafer, each having a shape adapted to engage only said periphery of said wafer when in contact with said wafer, said adjacent pair of rollers being spaced by a distance greater than the dimension of a said peripheral position indicator on a said wafer" as recited in independent claim 30. Accordingly, obviousness has not been established with respect to independent claim 30 or any claims dependent thereon.

Applicants also note that paragraph [0056] of the specification also indicates that the embodiments covered by independent claim 30 have advantages not appreciated by the cited art. As explained at paragraph [0056], by providing pairs of rollers adjacent to each other, the dynamic equilibrium of the wafer is maintained when the wafer contains a notch and is rotating. If only one roller is present, the roller can fall into the notch 3 of the wafer as it is being rotated, thereby upsetting the rotation of the wafer. Neither this advantage nor the other advantages of embodiments of the invention are appreciated by the cited prior art, and independent claim 30 is clearly patentable over Thomas et al. and Hines.

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III. 35 U.S.C. 103 - Thomas et al., Hine, and Bacchi et al.

A. Independent claim 16

Claims 16-17 and 20-29 are rejected as obvious over Thomas et al., Hine, and Bacchi et al. This rejection is traversed.

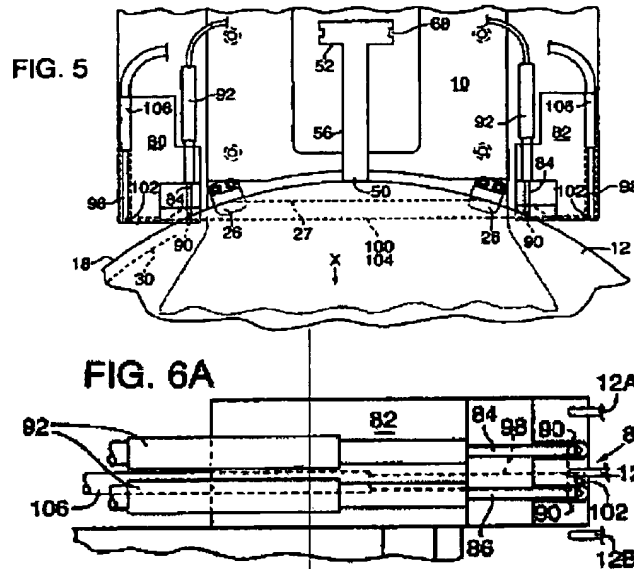
Obviousness has not been established with respect to independent claim 16. Neither Thomas et al., Hine, nor Bacchi et al. teach or suggest an apparatus comprising, *inter alia*, "a rotatable driver mounted on said rigid structure at a position to engage said periphery of said wafer when supported by said rotatable wafer supports, and selectively operable to rotate said wafer while supported by said rotatable wafer supports to a selected radial position; and a first optical detector mounted on said rigid support structure, said first optical detector being operable to detect when said wafer is in said selected radial position and to generate a signal indicating the same" as recited in independent claim 16

The Examiner admits that neither Thomas et al. nor Hine teach or suggest an optical detector. The Examiner instead relies on Bacchi et al. as teaching an optical detector. The Examiner alleges that Bacchi et al. discloses "a first optical detector 80 mounted on a rigid support structure to detect a radial wafer position. Col. 2, lns. 55-67." The Examiner further alleges that it would have been obvious to add a first optical detector to the apparatus of Thomas et al., as per the teachings of Bacchi et al., to detect the periphery position indicator and establish the wafer orientation."

Bacchi et al. is entitled "Robot Arm With Specimen Sensing And Edge Gripping End Effector". While Bacchi et al. does disclose optical sensors, contrary to the Examiner's allegation, the optical sensors are not "operable to detect when said wafer is in said selected radial position and to generate a signal indicating the same", wherein the selected radial position is achieved by rotation of the wafer. As shown below, element "80" referred to by the Examiner is not even a sensor, but is a "sensor housing" (c. 7, l. 28) which has optical fibers 84, 86.

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It is clear that in Bacchi et al., the optical fibers 84, 86 sense the linear movement of a wafer to a desired position by sensing the wafer's edge, so that an end effector 10 can transfer a wafer to and from a wafer cassette (c. 4, l. 20-26; and c. 7, l. 3-10). The fibers 84, 86 do not detect when a wafer is in a selected radial position, because Bacchi et al. fail to even teach or suggest rotating wafers. Because each and every limitation in independent claim 16 is not taught or suggested by Thomas et al., Hines, and Bacchi et al., obviousness has not been established with respect to claim 16 or any claims depending therefrom.

Obviousness has also not been established, since there is no motivation to modify Thomas et al. for the reason provided by the Examiner. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). The Examiner states that one would have been motivated to have modified Thomas et al. with the teachings in Bacchi et al. "to detect the periphery position indicator and establish the wafer orientation". However, neither Thomas et al. nor Bacchi et al. mention that detecting a wafer periphery position indicator to detect a "selected radial position" is remotely a concern. In fact, neither Thomas et al. nor Bacchi et al.

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even mention rotating wafers, so the detection of radial positions of wafers cannot be taught or suggested by these references. Accordingly, there is no motivation to modify Thomas et al. for the reasons provided by the Examiner.

III. 35 U.S.C. 103 - Thomas et al., Hine, and Kitayama et al.

Claims 31-37 are rejected as being obvious in view of Thomas et al., Hine, and Kitayama et al. (U.S. Patent No. 5,445,486). This rejection is traversed.

Although this rejection is traversed, claims 31-37 are canceled to expedite the prosecution.

IV. 35 U.S.C. 103 - Thomas et al., Hine, Kitayama et al. and Bacchi

A. Independent claim 38

Claims 38-43 are rejected as obvious in view of Thomas et al., Hine, Kitayama et al., and Bacchi et al. This rejection is traversed.

Obviousness has not been established with respect to independent claim 38. Neither Thomas et al., Hine, Kitayama et al., nor Bacchi et al., teach or suggest an apparatus comprising, *inter alia*, "a rotatable driver mounted on said rigid structure at a position to engage said periphery of said wafer when supported by said rotatable wafer supports, and selectively operable to rotate said wafer while supported by said rotatable wafer supports to a selected radial position; and a first optical detector mounted on said rigid support structure, said first optical detector being operable to detect when said wafer is in said selected radial position and to generate a signal indicating the same". As explained above, with respect to independent claim 16, neither Thomas et al., Hine, nor Bacchi et al. teach or suggest this feature. Kitayama et al. is cited for its alleged teaching of "a plurality of rigid support structures 77" and does not remedy the deficiencies of Thomas et al., Hine, and Bacchi et al.

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V. Obviousness-type double patenting

Claims 1, 3, 10-12, 16-17, 25-28, 31, 38, and 42-43 are rejected for obviousness-type double patenting. The obviousness-type double patenting rejection is traversed. However, Applicants will file a terminal disclaimer upon in indication that the claims are otherwise in condition for allowance.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned.

Respectfully submitted,



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